WE CLAIM

1. Method for selective removal of hydrogen sulphides, organic sulphur components and CO_2 from crude gases, like e.g. mineral gas or synthesis gas, by using a first absorption stage (41) and a second absorption stage (49) for separating almost pure CO_2 and using a desorption stage (50) for extracting a gas rich in hydrogen sulphide, whereby the regenerated absorbing substance from the desorption stage (50) is again guided back to both the absorption stages (41, 49), whereby as absorbing substance one uses a chemically non-active solvent,

in which

the absorption agent enriched with hydrogen sulphide, organic sulphur compounds and CO_2 and coming out of the first absorption stage (41), finds itself at an increased pressure between the pressure of the absorption column (41) and the pressure of the desorption column (50), and is pre-heated with the hot-regenerated solution (12) coming from the desorption stage (50) in a heat exchanger (44), and is then de-stressed at a selected higher pressure in a high pressure flash container (47), whereby the gas flow released at the increased temperature is cooled in a condenser (48) and then guided to the second absorption stage (49), in which the sulphur components are completely removed with the help of (already mentioned) the part-flow the regenerated absorption agent (15, 16, 17) coming from the desorption stage (50), whereby the absorption agent is guided back (26/27) out of the second absorption stage (49) into the desorption stage(50).

2. Method as per claim 1,

In which

the charged absorption substance (18) is heated after the second absorption stage (49) and before entering into the desorption stage, whereby the heating takes place in indirect heat exchange (52) with the absorption substance flow (15) coming from the desorption stage.

3. Method as per claim 1 or 2,

in which

after the second absorption stage (49) a flash stage (55) is foreseen, in which the charged absorbing substance is released out of the second absorption stage and the thus released flash gas (19) which primarily contains CO_2 and portions of H_2S, is led into a pipeline at least indirectly leading to the leading absorption substance stage, and the absorbing substance (26) is guided into the desorption stage.

4. Method as per claim 1 or one of the following claims,

in which

directly before the second absorption stage (49) a flash stage (55) is arranged, in which the absorbing substance (9) coming out of the condensation stage (48) is de-stressed and the released valuable gas, which mainly contains hydrogen sulphides, H_2S and CO_2, is guided back into the first absorption stage (41).

5. Method as per claim 1 or one of the following claims,

in which

the absorption takes place at an operating pressure of 10 to 150 bar.

6. Method as per claim 1 or one of the following claims,

in which

the temperature of the enriched absorption agent coming from the absorber is increased to 50 to 200°C.

7. Method as per claim 1,

in which

the enriched absorption solution leaving the high pressure flash container (47) is de-stressed in a low pressure (56), whereby the flash gas along with the flash gas coming out of the flash stage (55) is guided to the second absorption column (45) with the help of a common compressor (58), and whereby the absorption solution leaving the low pressure flash (56) is guided on to the head of the desorption column.